

Putrid gums and 'Dead Men's Cloaths': James Lind aboard the *Salisbury*

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SUMMARY

18th century sailors often suffered from scurvy. In 1747 James Lind conducted his classic experiments aboard the *Salisbury*, in which he cured scurvy with oranges and lemons. The Royal Navy did not introduce citrus rations until 1795. The original ship's papers allow the circumstances of the experiment to be reconstructed. The relevant patrol began in March 1747, and Lind's experiment began after 8 weeks at sea. The muster roll records almost no sickness aboard until the ship returned to Plymouth in June. This is at odds with Lind's account and suggests an anti-sickness official culture, which may have contributed to the neglect of his work.

INTRODUCTION

By the mid-18th century the ability to fix positions at sea allowed ships routinely to make long voyages out of sight of land. From consequent lack of fresh vegetables and fruit the sailors commonly developed scurvy, and from being solely an affliction of explorers the condition took on military, colonial and economic dimensions. Attempts to deal with it were hampered by confusion between different disorders and by the lack of a scientific approach. Before James Lind's *Treatise* of 1753¹, those who wrote about scurvy had seldom seen it for themselves, and 'no physician conversant with this disease at sea had undertaken to throw light upon the subject'. Lind (1716–1794) was not the first to treat scurvy with citrus fruit, but his fame endures because of his contribution to scientific medicine in using a comparative experimental design. His study took place 'on board the *Salisbury* at sea' between 20 May and 17 June 1747. The British Royal Navy did not adopt citrus rations until 1795.

Lind's experiment is only briefly described in his *Treatise*, and the lack of detail has led to contradictory secondary accounts (e.g. of where the ship was going). I have therefore located and studied the ship's original papers, in particular the captain's log book and muster roll. Held in the Public Record Office in Kew, Surrey, England (archived as ADM 51/936 and ADM 36/3298), these describe the ship's voyages, crew, provisions, engagements with the enemy and eventual fate. As far as I am aware these records have not previously been studied with regard to Lind's work.

For the purposes of this paper, I have amended the dates recorded in the documents. Britain remained on the Julian

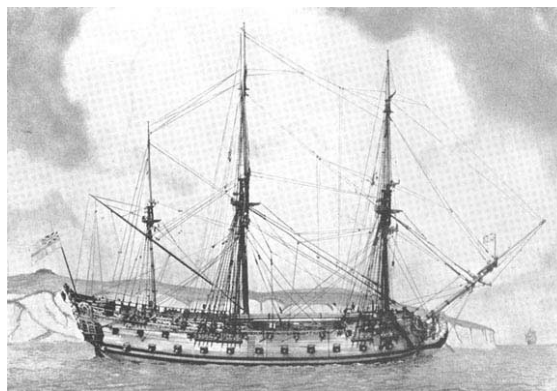


Figure 1 His Majesty's ship *Salisbury*, from a reconstruction

calendar until 1752, so in 1746 dates between 1 January and 25 March were written as in '1745/6'. For clarity the years are rendered here into the current Gregorian style.

THE CAPTAIN

Fri 22 Jan 1746: This Day I receiv'd my Commission for His Majesty's Ship Salisbury, she laying at Cows.

The Hon Sir George Edgcumbe (1721–1795) was the MP for Fowey and later Admiral Viscount Mount-Edgcumbe. He was serving aboard the *Kennington* before being appointed to this new ship, which he captained till 1753.

Edgcumbe was painted circa 1748 by Sir Joshua Reynolds 'with a wydah bird' and the *Salisbury* appears in the background. The portrait can be seen at the National Maritime Museum, Greenwich. Although he witnessed the success of Lind's experiments, there is no indication that Edgcumbe was later an advocate for citrus rations or influenced Navy policy on this subject.

THE SHIP

This was the Royal Navy's fourth ship to be named *Salisbury*. She was a fourth-rate ship-of-war with 50 guns, built at East Cowes, Isle of Wight, and was launched on 29 January 1746.

Sun 16 Feb 1746: Fresh Gales and Rainy Weather. PM sail'd from Cows & Anchor'd to Stop Tyde. AM Weighed and came into Portsmouth Harbour.

Fri 21 Feb: Received on board 30 Hammacoes 12 Scrapers & 4 Butts of Beer.

THE CREW

Salisbury's complement 300 men; Began wages 22 Jan and Extra petty warrant victualling to 5 Feb 1746, Sailed to Spithead 4 April ended Petty Warrant and began sea victualling 5 April 1746.

Drumming up an adequate crew was not easy. After the captain, names #2, 3 and 4 on the muster roll are the lieutenants; then #5, 6 and 7 are unnamed temporary officers' servants.

#8 James Hostrick, Gunner, Deficiency of stores charged to be paid to John Plumpton 25 Oct 1746.

#9 John Murripie his servant, discharged 10 April.

#10 Antony Lambert, carpenter.

#11 Richard Young, cook, discharged 15 March. Unserv.-Admiralty Order.

There would be no better luck with the next signing. That was the ship's surgeon.

#12 Alexander Hart, surgeon, discharged 17 March PS Mary.

17 March also saw the first death aboard: 'Thomas Fricker marine departed this life'. It is unclear why Hart left so soon, but if 'PS Mary' means Port St Mary in the Isle of Man, perhaps he found a medical practice there.

#20 William Woolaston, surgeon's mate, from [HMS] Shrewsbury, discharged 10 March 1747, preferment.

So Woolaston worked with Lind, but left just before the voyage of the experiment. His 'preferment' may indicate promotion to surgeon. Lind himself began as surgeon's mate on joining the Navy in 1739. That was also the career of Tobias Smollett, who in 1748 published *Roderick Random*, a picaresque novel of shipboard life: '—such a swarm of Scotch surgeons at the navy office, in expectation of the next vacancy, that the commissioners are afraid of being torn to pieces. . .'.²

Other signings included:

#55 William Oliver, surgeon's servant, discharged 17 March with his master.

65 Sylvarin Bijolat, surgeon's 2nd mate, 24 Feb superceded.

By 1 April 1746 the ship was still in Portsmouth harbour, rigged and provisioned, but with only a quarter of her crew aboard.

#78 James Lind, surgeon, certified to the 4 July 1747, paid 23 Dec 1747.

These latter dates refer to when Lind left the *Salisbury*, and when he left the Navy altogether. Like Captain Edgcumbe, he had transferred from the *Kennington*. That ship's records also survive, so his service there could be reconstructed.

#79 Robert Goding his servant. (0.5.0 for Dead Men's Cloaths)

'Dead Men's Cloaths' was a fund operated by Navy ships for widows and dependants of seamen. So Goding paid five shillings for some item of clothing, perhaps from the late Thomas Fricker, by way of donation.

On Friday 4 April the *Salisbury* moved out of harbour to the sea anchorage off Spithead, where the rest of the crew boarded. How willingly they served is revealed by the 74 names subsequently listed as deserters, but the only reference to pressed men comes in July 1747 just after Lind left, when three prisoners were pressed into service.

Thur 10 April 1746: . . . At 9 weigh'd anchor and sail'd in company with the Defiance.

The *Salisbury's* active service had begun.

THE CAMPAIGN

For much of that century, cross-Channel relationships alternated between unfriendly encounters and outright warfare. Britain had been at war with Spain since 1739, the year Lind joined the Navy, in the War of Jenkins' Ear. This escalated into the 1740–1748 War of Austrian Succession, when Britain sided with Austria, Holland and Scandinavia against France and Spain.

Control of the seas was essential for Britain, with extended naval patrols both in home waters—the task of the *Salisbury*—and afar. Between 1740 and 1744 Admiral Lord Anson led a circumnavigatory expedition against the Spanish in the Pacific and suffered appalling losses from scurvy. Lind studied their experience and dedicated his *Treatise* to Anson; he also drew upon his own naval service around Iberia, Africa and the Mediterranean.

THE SHIP'S EARLY CAREER

The role of the smaller warships was to control sea traffic. To do so they had to spread out and act independently, often out of sight of the rest of the fleet. The *Salisbury* made four such patrols in 1746 and one early in 1747, then the next was the setting for Lind's experiment.

Sat 7 March 1747 [Portsmouth]: Began to Stow the Hold. AM The Chester sail'd. Rec'd 6 side fresh Beef, 170 Baggs of Bread, one Puncheon Pork, 3 Barrels Rasens, 3 Barrels & 1 Hogshead Rice, 15 Firkins Butter, 33 Cheeses and some Boatwain's and Carpenters Stores.

Tue 10 March: The Namure sail'd. Rec'd 4 side fresh Beef, 40 Butts Beer, 30 Puncheons Water.

The rice is a surprising provision. It was not just a luxury for the officers' table, for it was part of the regular diet of Lind's patients. The ship would also carry minor provisions not recorded in the log, or purchased privately by the crew from the bum-boats that plied the harbour; thus, no mention of poultry, fish, root crops or potherbs, let alone Lind's oranges and lemons. He stated that green vegetables were plentiful in port; however, the crew's vitamin C status on departure would have depended on the quality of their landside diet, and the vitamin C content of vegetables would have been low at the end of winter. In any event, the log concentrated on the essentials:

Fri 13 March: Rec'd 50 Butts of Beer, Returned Empty Butts.

3 men died before the ship even left Spithead. On 19 March 'William Green fell overboard and was Drown'd' and on the 27th 'Departed this life William Hopkins' (the coxswain). The log book recorded all deaths aboard, but missed those in crewmen taken to hospital and dying there, such as Thomas Draper on 14 March. To ascertain those deaths, the muster and weekly roll-call are needed. Only one page of the latter has survived, but fortunately it covers the year 1747, and it also counts those who were ill. (For instance, on 9 January Lind's servant Robert Goding was discharged to Plymouth Hospital, but he recovered and returned on the 12th.)

Meanwhile William Woolaston had left on 10 March 1746; he was replaced as surgeon's mate by Cornelius Murray.

The *Salisbury* sailed on Sunday 29 March but soon had to return, for the best of reasons: just off Portland, she made a major capture.

Mon 30 March: Weigh'd and came to sail in company as before. AM gave Chase to the Westward, fired three shott at the Chase. Tue 31 March: The Chase hoisted French Colours and struck to us. A French Privateer from Bologne, called the Frap de Borde,

about 45 Tuns, took out 54 Prisoners, sent 10 of our men aboard her. Fired a shott brought to a Dutch ship for Amsterdam. AM Departed this life John Carnaby.

Wed 1 April: PM Anchor'd in Plymouth Sound in 6 fathom of water with our prize and moor'd. Found lying here various of His Majesty's Ships. Departed this life William Bates.

The ship topped up her provisions of bread, beef, pork, peas, oatmeal and suet before returning to sea on Thursday 2 April. On Friday 'departed this life Timothy Ryan'.

Sat 11 April [off Land's end]: First part Mod, later Fresh Gales & squally. PM unbent Foresail and bent another. AM Fired 4 Shott brought to & took a French Dogger from Rochet for Newfoundland.

This was *L'Amila*; they took off 13 French prisoners (who received two-thirds the standard ration) and sent her as a prize to Plymouth.

Over the next three weeks the *Salisbury* halted and let pass a series of neutral or friendly vessels. Tuesday 5 May, around the time of the first Battle of Finisterre, saw the ship prowling the estuary of the River Loire. Here they espied a convoy of over a hundred French ships and made for them; but the convoy retreated up-river and the encounter was anticlimactic. Lind and his assistants were not called upon to treat the casualties of a sea battle.

The *Salisbury* was still in the same area of the Bay of Biscay on Wednesday 20 May when Lind's experiment began, eight weeks after leaving port. One-tenth of the crew by this time had scurvy, so he had 30 or 40 individuals to choose from. He picked 12:

'Their cases were as similar as I could have them. They all in general had putrid gums, the spots and lassitude, with weakness of the knees. They lay together in one place, being a proper apartment for the sick in the forehold; and had one diet common to all, viz water-gruel sweetened with sugar in the morning; fresh mutton broth often times for dinner; at other times puddings, boiled biscuit with sugar etc; and for supper barley and raisins, rice and currants, sago and wine, or the like.'

However, the weekly roll-call shows at most one or two, and usually none, as sick during this entire voyage. Presumably the Navy had a harsh definition of sickness, and accepted scurvy just as we might accept a 10% prevalence of the dietary disease of obesity. This limits what may be deduced from this source.

Thur 21 May (47° 25'N, 120'W): Fresh gales and squally with Rain. Departed this life Thomas George seaman.

Lind's experiment was a six-armed comparative trial of cider, elixir of vitriol, vinegar, sea water, oranges and lemons, and a purgative mixture. There was no control or placebo group.

Fri 22 May (46°56'N, 163'W): PM open'd a Cask of Pork No 552, 2 Pieces Short. AM brought too a Dutch Vessel for Amsterdam

Monday 25th was an infuriating day for the captain: the *Salisbury* lost the jib boom and topgallant mast chasing a ship that declined to stop until twelve shots had been fired. It turned out to be an English privateer, obviously thumbing its nose at the Royal Navy, and had to be let pass; and similarly a Guernsey privateer on 8 June.

By the end of May, the two men assigned to citrus fruit were almost recovered. One returned to duty; the second helped nurse the others. (So $n=2$ and number needed to treat=1.)

Thur 4 June: Condemned after survey 130 pds of Cheese and 90 pds of Butter. Fired a shott brought too a Galis for Rotterdam.

This bodes ill: if the cheese had to be thrown overboard, then what of the beef or pork? Even if edible, the rations were running low: 'Rec'd from the Shoreham Seven Baggs Bread'. In mid-June *Salisbury* rounded the tip of Brittany and headed for port, and Joseph Edwards was lost overboard, the last death on this patrol. The preponderance of deaths early on weighs against dietary-deficiency causes.

Wed 17 June: Little Wind. PM saw a convoy to the Eastward and anchor'd in Plymouth Sound in 6½ fathom and moor'd. 4 AM, unmoor'd went into Hamoze and Lash'd alongside the Torrington. Sent the French Prisoners ashore, unbent sails and struck yard and top mainsail.

Thus ended the voyage, the experiment and Lind's shipboard service. We can only speculate on whether, given another patrol, he might have mounted the larger study that would have compelled official notice.

It was only now, in harbour, that significant illness was recorded, affecting a quarter of the crew. It began on 22 June and was still present when the ship returned to sea on 10 July. The log does not describe the illness but its pattern suggests a gastrointestinal outbreak such as dysentery. In the midst of it Lind left the ship. In 1748 he gained his MD, on venereal disease, took up practice in Edinburgh and remained there till 1758, when he was appointed Chief Physician at the Royal Hospital, Haslar.

WHAT HAPPENED TO THE SHIP?

The *Salisbury* continued to make similar patrols, her greatest prize being the capture of *Jason* on 30 January 1748. In that

year the war ended. In 1753 Edgcumbe left, T Knowler became captain, and *Salisbury* was a guard ship at Plymouth.

On 24 March 1754 she sailed for the East Indies, protecting an East India Company expedition. Ironically, the crew suffered badly from scurvy while in the Admiral's flagship Lind's colleague Dr Ives issued citrus juice and that crew remained well.

The ship spent the rest of her career in India, and when the Seven Years War began in 1756 she saw action at Gariah, Cuddalore, Negapatam and Pondicherry. The last captain, Sir William Baird, took up post in 1760. His log (archived as ADM 51/843) describes patrols along the coast of India, with only occasional challenges or skirmishes. There was no mishap or exchange of fire that hastened the ship's end: she was simply worn out and leaky. When she reached Bombay in April 1761 'The Carpenters having surveyed the ship, condemned her unfit for service'.

So there she lay for the next few months, under the Indian summer sun, with a stench from the live cattle kept aboard for meat.

Fri 28 Aug 1761: Squally with frequent showers. AM the Pendant was hauled down and the ship put out of Commission on Admiral Cornish's orders as being unfit for service. [signed] William Baird.

Thus ended His Majesty's Ship *Salisbury*. After cannibalization for timber, the hulk would have been towed away from harbour to rot on a mudbank.

Lind died in 1794; not until 1795 did the Royal Navy adopt citrus rations, and abolish scurvy. Several reasons have been given for this recalcitrance.³ Vitamin C was not yet understood. Medical practice at the time was not based on reason and experiment but on custom and eminent opinions—especially in a hierarchical organization such as the Navy. But what is also suggested by the present study is a culture of denial of sickness, at least at sea. Smollett parodies this attitude in *Roderick Random*, in the words of Captain Oakhum: 'Blood and oons! Sixty-one sick people on board my ship!—Harkee you sir, I'll have no sick in my ship, by God!' And indeed, if the Navy's own records were taken at face value, Lind never cured scurvy on the *Salisbury* because there was no sickness there for him to treat.

REFERENCES

- 1 Lind J. *A treatise of the scurvy. In three parts. Containing an inquiry into the nature, causes and cure, of that disease. Together with a critical and chronological view of what has been published on the subject.* Edinburgh: Printed by Sands, Murray and Cochran for A Kincaid and A Donaldson, 1753
- 2 Smollett T. *Adventures of Roderick Random* (edited by P-G Boucé). Oxford: Oxford University Press, 1999
- 3 Harvie D. *Limeys*. Stroud: Sutton, 2002